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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/905,080
Filing Date: July 16, 2001
Appellant(s): ACHARYA, YATIN

Advanced Micro Devices, Inc.,
Leon R. Turkevich
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed April 19, 2006 appealing from the Office action mailed July 28, 2005 and December 19, 2005.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Attached: 4 pages of Exhibit A of Response After Final filed September 21, 2005: "InfiniBand Architecture Release 1.0 Volume 1-General Specifications", pages 41, 44, and 175-176.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-12 are rejected under 35 U.S.C. §102(e) as being anticipated by **Pekkala et al.** (hereinafter Pekkala) U.S. Pub. No. **2002/0085493**.

3. As to claim 1, **Pekkala** teaches the invention as claimed, including a method in a network node, the method comprising:

detecting by a network interface in the network node (port 208 in the IB switch 106, figures 1, 2) a depletion of flow control resources representing a depletion of network bandwidth for a prescribed data stream (paragraphs 0049-0051, 0074-0077, 0092, 0106-0107);

outputting by the network interface a data flow interruption request based on the detected depletion of flow control resources (paragraphs 0084, 0092-0094, 0112); and

reducing, by a processor in the network node and based on the data flow interruption request, the prescribed data stream by reducing execution of a prescribed application resource configured for generating the prescribed data stream (paragraphs 0076, 0084-0085, 0094, 0113-0114).

4. As to claim 2, **Pekkala** teaches the invention as claimed, wherein the network interface is configured for outputting the prescribed data stream according to infiniBand protocol, the detecting step including detecting the depletion of flow control credits, as the flow control resources, for a prescribed virtual lane (abstract, paragraphs 0056, 0077).

5. As to claim 3, **Pekkala** teaches the invention as claimed, wherein the outputting step includes outputting the data flow interruption request to a memory controller configured for controlling access to system memory resources, the memory controller rendering unavailable the system memory resources for the prescribed application resource in response to reception of the data flow interruption request (paragraphs 0085, 0094).

6. As to claim 5, **Pekkala** teaches the invention as claimed, further comprising outputting by the network interface a resume data flow request based on a detected replenishment of the flow control resources for the prescribed data stream (paragraphs 0114, 0117-0118).

7. As to claim 6, **Pekkala** teaches the invention as claimed, further comprising resuming execution of the prescribed application resource based on the resume data flow request (paragraphs 0114-0116).

8. As to claim 7, **Pekkala** teaches the invention as claimed, including a network node comprising:

a network interface configured for detecting a depletion of flow control resources representing a depletion of network bandwidth for a prescribed data stream, the network interface configured for outputting a data flow-interruption request based on the detected depletion of flow control resources (paragraphs 0049-0051, 0074-0077, 0084, 0092-0094, 0106-0107, 0112); and

a processor configured for executing a prescribed application resource for generation of the prescribed data stream, the processor configured for reducing the prescribed data stream by reducing execution of the prescribed application resource, based on the data flow interruption request (paragraphs 0076, 0084-0085, 0094, 0113-0114).

9. As to claim 8, **Pekkala** teaches the invention as claimed, further comprising a memory controller configured for controlling access to system memory resources, the memory controller configured for rendering unavailable the system

memory resources for the prescribed application resource in response to reception of the data flow interruption request (paragraphs 0085, 0094).

10. As to claim 9, **Pekkala** teaches the invention as claimed, wherein the processor is configured for reducing the execution of the prescribed application resource based on detecting the unavailability of the system memory resources (paragraphs 0076, 0084-0085, 0094, 0113-0114).

11. As to claim 10, **Pekkala** teaches the invention as claimed, wherein the network interface is configured for outputting a resume data flow request based on a detected replenishment of the flow control resources for the prescribed data stream (paragraphs 0114, 0117-0118).

12. As to claim 11, **Pekkala** teaches the invention as claimed, wherein the processor is configured for resuming execution of the prescribed application resource based on the resume data flow request (paragraphs 0114-0116).

13. As to claim 12, **Pekkala** teaches the invention as claimed, wherein the network interface is configured for outputting the prescribed data stream according to infiniband protocol, the network interface configured for detecting the depletion of flow control credits, as the flow control resources, for a prescribed virtual lane (abstract, paragraphs 0056, 0077).

14. As to claim 13, **Pekkala** teaches the invention as claimed, wherein the outputting step includes outputting the data flow interruption request to a memory controller configured for controlling access to system memory resources, the memory controller rendering unavailable the system memory resources for the prescribed application resource in response to reception of the data flow interruption request (paragraphs 0085, 0094).

(10) Response to Argument

A. Appellant argues that claim 1 and 7 are not anticipated 35 U.S.C 102(e) in view of Pekkala et al.

A1. Appellant argues that Pekkala does not disclose or suggest "a data flow interruption request based on the detected depletion of flow control resources" as in page 6 of Appeal Brief.

In response to appellant's argument, the examiner asserts that Pekkala does teach or suggest the feature of outputting by the network interface a data flow interruption request based on the detected depletion of flow control resources (paragraphs 0092-0094, 0112, figure 7–*after detecting there is no buffer available to receive packet or there is not enough flow control credits to transmit the packet, the buffer control logic 606 send notification via signal 744 to flow control logic 726 to*

shutdown the link partner 752). Therefore, the examiner submits that Pekkala clearly teach or suggest the feature as recited.

A2. Appellant argues that Pekkala does not teach or suggest the claimed reducing the data stream based on reducing execution of a prescribed application resource based on the data flow interruption request as argued in pages 12-15 of the Appeal Brief.

Before addressing the appellant's argument, the examiner submits that in the instant specification discloses the feature of in response to detecting the unavailable of the system memory resources for the corresponding application resource, reduces the prescribed data stream by **reducing execution** of the corresponding application resource by **temporary suspending/halting execution** until reception of a resume data flow request indicating replenishment of the flow control resources for the prescribed data stream (see page 5, lines 7-11, and 22-31).

In the related art, Pekkala teaches after detecting that a buffer is not available for transmitting packet 300, the buffer control logic 606 generates a value on control signals 744 to cause the flow control logic 726 to shut down the link partner 752 to prevent from transmitting packet 300. Meanwhile, the packet 300 is placed into the inline spill buffer 612 and waited for the buffer to become free/available to transmit the packet (see figure 7, paragraphs 0076, 0084-0085, 0094, 0112-0114).

Therefore, the examiner concludes that Pekkala does teach or suggest the feature of reducing the data stream based on reducing execution of a prescribed application resource based on the data flow interruption request as discussed above.

A3. Appellant argues Pekkala does not teach or suggest the claimed detecting depletion, outputting a data flow interruption request, and reducing execution of a prescribed application resource within the *same network node*.

A3.a. Appellant argues that Pekkala does not disclose or suggest the claimed operations performed in the same network node as argued in pages 15-17.

In response to appellant's argument, the examiner asserts that Pekkala does teach detecting, outputting and reducing step within the IB (infiniband) switch (i.e., within network node) 106 or 700 of figures 1, 6 and 7. Also the IB switch comprises port 608 (i.e., network interface). And also it is inherent that IB switch has to have a processor in order execute and control all of control unit, other logics and buffers/memory.

A3.b. Appellant argues that the examiner is deliberately disregarding the claimed feature that the detecting by the network interface, outputting by the network interface, and reducing by the processor is performed in "a network node", i.e., ***the same network node*** as argued in pages 17-19.

In response to appellant's argument, the examiner submits that the examiner does not disregard the claimed features performed in the same network node, since the examiner already points out the IB switch 106 includes network interface, processor, memory controller (i.e., buffer control logic) that perform the operations of detecting, outputting and reducing step as disclosed by the instant claimed language as discussed above.

A3.c. Appellant argues that Pekkala does not disclose detecting depletion, outputting a data flow interruption request, and reducing execution of a prescribed application resource *within the same network node* as argued in pages 19-20.

In response to appellant's argument, the examiner submits that this argument has already addressed by the examiner as indicated in paragraphs A3.a. and A3.b. above.

B. Appellant argues that Pekkala does not disclose or suggest the memory controller of dependent claims 3, 8, and 13 as argued in page 20.

In response to appellant's argument, the examiner submits that Pekkala does teach or suggest a memory controller (figure 7, buffer control logic 606 read as memory controller).

Appellant argues that Pekkala fails to disclose or suggest rendering unavailable system memory resources for the prescribed application resource (paragraphs 0084,

0085, 0094, 0012-0014 –*the buffer control logic 606 detects/determines that the share buffer 604 is not available for a packet 300, the buffer control logic 606 generates control signal 744 to flow control logic in port 608 (i.e., network interface) to shut down the link partner to prevent from transmitting packet 300*).

As a result, cited prior art does disclose a system and method for flow control systems used to manage network traffic output by network nodes, as broadly claimed by the Applicants. Applicants clearly have still failed to identify specific claim limitations that would define a clearly patentable distinction over prior art.

15. Therefore, the examiner asserts that cited prior art teaches or suggests the subject matter broadly recited in independent claims 1and 7. Claims 2-6 and 8-13 are also rejected at least by virtue of their dependency on independent claims and by other reasons set forth in the discussion above.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Thuha Nguyen

Patent examiner

July 7, 2006

ZARNI MAUNG
SUPERVISORY PATENT EXAMINER

Conferees:

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